

THE

February, 1959

CHEMIST

VOLUME XXXVI



NUMBER 2



Dr. Bernard S. Friedman, F.A.I.C.

—Fabian Bachrach

Received Honor Scroll of Chicago AIC Chapter.

(See page 47)



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February, 1959

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THE AMERICAN INSTITUTE OF CHEMISTS

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Deadlines for THE CHEMIST: For the April issue the deadline is March 15.

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THE AMERICAN INSTITUTE OF CHEMISTS does not necessarily endorse any of the facts or opinions advanced in articles which appear in THE CHEMIST.

IN THIS ISSUE

Thirty-sixth Annual AIC Meeting	40
Editorial:	
The Essence of the Code of Ethics	41
Special AIC Announcements	
The 1960 Annual Meeting	42
Chapter Rebates Increased	42
Social Hour in Boston	43
Dues for 1959-1960	43
Jerome Alexander 1876-1959	43
Professional Appointments	43
Report of the Committee on Legislation	45
About AIC Members	46
Time and Talents Wisely Used,	
<i>Dr. Bernard S. Friedman, F.A.I.C.</i>	47
Bernard S. Friedman, Chemist and Citizen,	
<i>Dr. Johan A. Bjorksten, F.A.I.C.</i>	54
Bernard Friedman—A Creative Chemist at Work,	
<i>Prof. William E. Parham</i>	56
Presentation to Dr. Friedman	59
The Serious Problem of Depreciation	60
Education Directed to Mediocrity	60
Communications:	
Interim Report from Alaska	61
Request to Reprint	61
Also a Challenge to the Student	61
Wants Format of <i>The Chemist</i> Changed	61
Conclusion Confirmed by Survey	62
The Great Challenge	62
Highlights of the AIC Council Meeting	63
Opportunities	66
For Your Library	67
Cosmetic Advertising May Discourage	
Research	Inside back cover

TO COME IN MARCH

Dr. J. W. E. Harrison, F.A.I.C., honored recently by the Pennsylvania Chapter, presents, "The Consultant, His Contribution to the Community." Dr. W. E. Peterson of the National Science Foundation discusses "Better Training of Secondary School Science Teachers." Richard L. Moore, F.A.I.C., begins a new column on public relations.

Recommended Suppliers and Services

J. T. Baker Chemical Co.	37	Molnar Laboratories	46
Bios Laboratories	70	Phoenix Chemical Laboratories	53
Corning Glass Works.....	Inside front cover	Lucius Pitkin, Inc.	65
Food & Drug Research Labs., Inc.	64	Robinette Research Labs., Inc.	71
Gordon & Campbell	62	Foster D. Snell, Inc.	Inside back cover
LaWall & Harrison	46	R. Steckler Laboratories	67
The Lento Press	72	Truesdail Laboratories, Inc.	68
Arthur D. Little, Inc.	60	U.S. Stoneware	Outside back cover
U.S. Testing Company	69		

Thirty-Sixth Annual AIC Meeting

TRAYMORE HOTEL, ATLANTIC CITY, N. J.

Wednesday, May, 6, 1959

Thursday, May 7, 1959

Friday, May 8, 1959

Annual Meeting Committee

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The ladies will have opportunity to participate in the following activities:

- (1) Swimming parties in the Traymore's beautiful indoor pool.
- (2) Visit to Lenox China.
- (3) Visit to unusual display of African violets at Fischer Greenhouses.
- (4) Contemporary art display at Traymore.
- (5) Shopping parties.
- (6) Dinner at Hackney's.
- (7) Evening String Ensemble at Traymore.

Theme of the Meeting: *The Chemist and Engineer in the Economy.*

(Send all inquiries to the General Chairman.)

Program information will appear in the March issue of *The Chemist*.

EDITORIAL

The Essence of The Code of Ethics

The Code of Ethics which all AIC members agree to abide by when they become members is printed in full in the April, 1958, issue of *THE CHEMIST*, (page 125). However, non-members often ask what, in brief, is covered by our Code of Ethics. Dr. Rudolph Seiden, chairman of the Midwest AIC Chapter, to answer such inquiries, has prepared the following condensation of the 21 Points covered by the Code:

The Code of Ethics (Abridged)

The profession of chemistry has become an increasingly important factor in the progress of civilization and in the welfare of the community. Chemists are entitled to the position and authority which will enable them properly to discharge their responsibilities and render effective service to humanity. In order that the honor and dignity of the profession be advanced and maintained, *THE AMERICAN INSTITUTE OF CHEMISTS* has prepared the following code (here abstracted) to define the rules of professional conduct and ethics, binding on its members:

Every individual incurs an obligation

(1) to advance the science and art of chemistry, to guard and uphold its high standard of honor, and to conform to the principles of professional conduct;

(2) to bear his part in sustaining the laws, institutions and burdens of his community;

(3) to not knowingly engage in illegal work;

(4) to act in a strict spirit of fairness to employers, contractors and clients, and in a spirit of personal helpfulness and fraternity toward other members of the chemical profession;

(5) to refrain from associating with any enterprise of questionable character;

(6) to advertise only in a dignified manner;

(7) to make the first publication regarding scientific advances through the technical societies and technical publications and to give credit to the real authors of the work.

(8) If work requested of a chemist seems to present improbability of success, he shall so advise before undertaking it.

(9) He shall be conservative in all estimates, reports, testimony, etc.

(10) He shall not accept compensation, financial or otherwise, from more than one interested party and shall not accept commissions from outside parties on sales to his client or employer without their knowledge.

(11) He shall not use any improper methods of securing professional work or advancement.

(12) He shall not injure directly or indirectly the professional reputa-

tion, prospects or business of a fellow chemist.

(13) He shall not accept employment by a client or employer while the claim for compensation or damage of a fellow chemist remains unsatisfied.

(14) He shall be diligent in exposing and opposing such errors and frauds as his special knowledge enables him to recognize.

(15) He shall report any infractions of these principles to the Ethics Committee of THE AMERICAN INSTITUTE OF CHEMISTS.

(16) He shall not attempt to compete with a fellow chemist by reducing his usual charges.

(17) He shall not accept any engagement to review the professional work (except articles in scientific publications) of a fellow chemist without the knowledge of such chemist or unless the connection of the latter with the work has been terminated.

(18) When undertaking work for a client or employer, he should enter

into an agreement. In the absence of a written understanding the following principles apply: (a) If a chemist uses information obtainable from his client or employer, any results in the form of designs, plans, inventions, processes, etc., shall be regarded as the property of the employer. (b) If he uses his own knowledge, then the results remain the property of the chemist and the client or employer is entitled to their use only in the case for which the chemist was retained.

(19) In consulting work, he shall fix fees high enough to warrant complete, adequate service.

(20) Chemists engaged in teaching and research should be permitted to render direct services to individual clients, provided the rates do not ignore the ordinary costs of equipment, supplies and overhead expenses.

(21) Having established a fair fee and billed same to a client, the chemist should oppose any effort to have such fee reduced without sufficient cause.

Special AIC Announcements

The 1960 Annual Meeting

The 37th Annual AIC Meeting will be held May 11-13, 1960, at the Radisson Hotel, Minneapolis, Minn., with the Twin City Chapter acting as host. Michael H. Baker, president, M. H. Baker Co., 1645 Hennepin Ave., Minneapolis 3, Minn., has been appointed chairman of arrangements for the meeting.

Chapter Rebates Increased

Beginning in May 1959, when the dues for the fiscal year 1959-60 are paid, AIC Chapters will receive as rebates for their paid-up members \$1.25 for each Fellow; \$1.00 for each Member, and \$1.00 for each Associate. This compares with previous rebates of \$0.84, \$0.56 and \$0.16 respectively.

SPECIAL ANNOUNCEMENTS

Social Hour in Boston

In connection with the meeting of the American Chemical Society in Boston, Mass., April 5-10, 1959, the AIC has scheduled a Social Hour, to be held Monday, April 6, before the Gordon Research Conferences dinner. Dr. J. Horace Faull, Jr., 72 Fresh Pond Lane, Cambridge, Mass., chairman of the New England AIC Chapter, will be our representative to take care of "late-ticket" sales. We hope all AIC members and their guests who are attending the ACS meeting will come to the AIC Social Hour to renew friendships.

Dues for 1959-1960

Dues for the 1959-1960 fiscal year, beginning May 1, have been modestly raised to: Fellows \$15.00 (from \$12.50); Members \$10.00 (from \$9.00) and Associates \$5.00 (from \$4.00). The need for this was dis-

cussed in *THE CHEMIST* (November 1958, p. 473) and at two meetings of the Council. The dues increase will be shared with the AIC Chapters in the form of higher rebates, to enable them to increase activities.

Jerome Alexander 1876-1959

With deep regret we record the death of Jerome Alexander, Hon. AIC, of New York, N. Y., on January 18. A specialist in colloid chemistry, he was the author of scientific books; of many articles, and of poetry both serious and humorous. He received Hon. AIC membership in 1951, as a "distinguished American scientist of world-wide renown." (See *THE CHEMIST*, Feb. 1951). He was co-founder of the N. Y. Section of the Societe de Chimie Industrielle, and was long its secretary. He became a Fellow of the AIC in 1927.

Professional Appointments

- Feb. 5, 1959. Philadelphia, Pa.** Engineers' Club. Pennsylvania Chapter Luncheon 12:15 p.m. Speaker: Charles P. Neidig, F.A.I.C., of White, Weld & Co. "The Chemist and the Investor." Reservations: Dr. William A. Langeland, Wyeth Labs, Radnor, Pa. (MUrray 8-4400).
- Feb. 5, 1959. Kansas City, Missouri.** Linda Hall Library, 5109 Cherry St. Meeting of the Midwest Chapter. 7:30 p.m. Speaker Dr. Joseph C. Shipman, director, Linda Hall Library. Subject, "The Scientist and His Library." (Linda Hall Library contains one of the finest scientific and technical collections in the country) AIC members and families are urged to attend to become acquainted with the library facilities available and the help a complete scientific repository can be in their work.
- Feb. 6, 1959. New York, N. Y.** New York Chapter meeting jointly with New York Section of the American Chemical Society. Hotel New Yorker, Mosaic Room. 7 p.m. Speaker, Dr. Wallace R. Brode, scientific advisor to the Dept. of State. Subject: "Government Policy. Why the Chemist Should Contribute." (To be discussed: Professional responsibility of the chemist. Need for the scientific approach, How he can contribute to local, state, and federal policy. Benefits to the chemist . . . to commerce . . . to society.)

- Feb. 10, 1959. Washington, D. C.** O'Donnell's Sea Grill, 1223 E St., N. W., 12:15 p.m. Washington Chapter. Luncheon Meeting. Speaker, Dr. Watson Davis, Director of Science Service. Subject, "Youth for the Scientific Future."
- Feb. 10, 1959. Newark, N. J.** Military Park Hotel. New Jersey Chapter meeting. Dinner 6:30 p.m. preceded by New Jersey Chapter Council meeting at 5:00 p.m., with chairman, Dr. L. T. Eby presiding. Program 8:00 p.m. Speaker, Dr. Thomas Q. Gilson, Dept. of Management, Rutgers University. Subject: "Resources for Self Development—Unusual Avenues." For reservations, Dr. John F. Mahoney, Merck & Co., Inc., Rahway, N. J. (Fulton 1-5000, Ext. 3254).
- Feb. 10, 1959. New York, N. Y.** The Chemists' Club, 52 E. 41st St., AIC National Council and Board of Directors' meeting and dinner. The Board meets at 5:30 p.m., the Council at 6:00 p.m.
- Feb. 26, 1959. Chicago, Illinois.** Prudential Bldg., Beaubien Room. Chicago Chapter meeting. Cocktails 6 p.m. Dinner 6:30. Speaker, Harrison C. Blankmeyer, Manager, Reinforced Plastics Development Lab., Owens-Corning Fiberglass Corp. Subject: "When Should I Change Jobs."
- Mar. 5, 1959. Minneapolis, Minn.** University of Minnesota. Twin City Chapter jointly with the American Institute of Chemical Engineers, Minnesota Industrial Chemists Forum, and the American Chemical Society. Dinner 6:00 p.m. at the Campus Club. After-dinner speaker: Dr. J. B. Calva, J. B. Calva Co., Minneapolis, "Romance with Furs." 8:00 p.m. Chemistry Auditorium: Speaker, Dr. Abraham Wickler, U. S. Health Addiction Center, Lexington, Ky., "Mental Chemistry." For information, Albert C. Holler, Twin City Testing & Engineering Laboratory, Inc., 2440 Franklin Ave., St. Paul 14, Minn.
- Mar. 5, 1959. Philadelphia, Pa.** Engineers' Club. Pennsylvania Chapter meeting. Speaker to be announced. For information: Dr. W. E. Langeland, Wyeth Institute, Radnor, Pa. (Murray 8-4400).
- Spring, 1959. Los Angeles, Calif.** Date and details to be announced. Western Chapter. Dinner-dance, "just to prove chemists are people and can have fun." For information, Stuart R. Garnett, 506 W. Almond St., Compton 4, Calif.
- Mar. 26, 1959. Chicago, Illinois.** Prudential Bldg., Beaubien Room. Chicago Chapter meeting. Cocktails 6:00 p.m. Dinner 6:30. Speaker: Dr. Edward L. Haenisch, F.A.I.C., Professor of chemistry, Wabash College, currently program director for Summer Institutes, the National Science Foundation. Subject: "Activities of the National Science Foundation."
- April, 1959. Niagara Falls, N. Y.** Niagara Chapter meeting. Day and details to be announced.
- April 2, 1959. Pittsburgh, Pa.** Pennsylvania Chapter dinner at the Fairfax Apartment at 6:30 p.m. Meeting at Mellon Institute at 8:00 p.m. Speaker: AIC President, Dr. Emil Ott, "The Professional Obligations of Chemists." For information, Dr. James L. Jezl, Sun Oil Company, Marcus Hook, Pa.
- Apr. 16, 1959. New York, N. Y.** The Chemists' Club, 52 E. 41st St. New York Chapter meeting. Social Hour 5:30 p.m. Dinner 6:30 p.m. Address 7:30 p.m. Speaker: Earl Ubell, science editor, *New York Herald Tribune*. Subject: "Community Recognition—How the Chemist Can Achieve It." (To be discussed: Professional responsibility of the successful chemist. Public relations techniques for obtaining recognition. Working with editors . . . with others who contribute to the chemist's recognition. Benefits to the chemist . . . to the profession . . . to society.) Reservations: (Dinner \$4.90. No charge to those attending address only), Robert R. Dean, Westvaco Chlor-Alkali Div., 161 E. 42nd St., New York 17, N. Y. (MU 7-7400).
- Apr. 21, 1959. Newark, N. J.** Military Park Hotel. New Jersey Chapter. Annual Awards Meeting and Banquet. Honor scroll and student medals to be presented. Cocktails 6:00 p.m. Dinner 7:00 p.m. Program 8:00 p.m. Friends, members of AIC and wives cordially invited. For program details, Dr. H. R. McCleary, chairman,

PROFESSIONAL APPOINTMENTS

Honor Scroll Program and Arrangements, American Cyanamid Co., Bound Brook, N. J. (ELIott 6-2000). For reservations, Dr. John F. Mahoney, Merck & Co., Inc., Rahway, N. J. (FULton 1-5000, Ext. 3254).

May 6, 1959. Atlantic City, N. J. Traymore Hotel. AIC National Council and Board of Directors meeting and dinner. 6:00 p.m.

May 7, 1959. Philadelphia, Pa. Engineers' Club. Pennsylvania Chapter. Student Award Night. Speaker and topic to be announced. For reservations, Dr. W. E. Langeland, Wyeth Institute, Radnor, Pa. (MURray 8-4400).

May 7-8, 1959. Atlantic City, N. J. Traymore Hotel. Thirty-sixth Annual AIC Meeting. Theme: "The Chemist and Engineer in Our Economy." The New York and New Jersey Chapters will be hosts.

May 19, 1959. Linden, N. J. Esso Refinery. New Jersey Chapter Plant trip. Tour begins at 3:00 p.m. Advance reservations and registration required as number for tour is limited. Business meeting and dinner to follow tour. For details: Dr. Stephen E. Ulrich, Chairman, Program Committee, Rutgers University, New Brunswick, N. J. (CHArter 7-1666). For reservations: Dr. John F. Mahoney, Merck & Co., Inc., Rahway, N. J. (FULton 1-5000, Ext. 3254).

May 28, 1959. New York, N. Y. Hotel Shelburne, 37th St. & Lexington Ave., New York Chapter. Honor Scroll Award Meeting. Social Hour 5:30 p.m. Award recipient and speakers to be announced.

June, 1959. Niagara Falls, N. Y. Niagara Chapter Meeting. Date and details to be announced.

May 11-13, 1960. Minneapolis, Minn. Radisson Hotel. 37th Annual AIC Meeting. The Twin City Chapter will be our host.

May 11-12, 1961. Washington, D. C. Statler Hotel. 38th Annual AIC Meeting. The Washington Chapter will be our host.

Report of the AIC Committee on Legislation Affecting Chemists and Chemical Engineers

For the period ending July 1958, no State or local legislation affecting chemists or chemical engineers had been reported in the areas covered by Advisory Associates of this Committee. Although some data showing State and local government salaries for chemists, chemical engineers, and teachers have been reported, evaluation of this material on a nation-wide basis is not possible at present because several Advisory Associates still have not reported on this phase of the work.

The Washington AIC Chapter Committee on Legislation, under the

leadership of Dr. A. P. Mathers, has contacted those in Congress responsible for legislation sponsoring the separate classification of scientific and professional workers in the government (S-2478). In reply, these members of Congress have given their assurance that a separate classification bill will be re-introduced this session.

—Maynard Pro, F.A.I.C.
Chairman.

The International Symposium on Macromolecules will be held in Wiesbaden, Germany, October 12-16, 1959.

About AIC Members

Dr. Everett G. McDonough, F.A.I.C., executive vice president of Evans Research & Development Corp., New York 17, N. Y., announces that **Dr. Kurt S. Konigsbacher**, F.A.I.C., has been appointed associate development manager.

At Keuffel & Esser Co., Hoboken, N. J., the following AIC members now hold the titles indicated: **Dr. Robert M. Gold**, F.A.I.C., senior research associate; **Thomas T. Kashiwabara**, A.A.I.C., research supervisor; **Dr. T. O. Norris**, F.A.I.C., director chemical research; **John J. O'Connor**, M.A.I.C., research supervisor, and **Daniel Spechler**, F.A.I.C., research supervisor.

Merritt L. Kastens, F.A.I.C., assistant director, Stanford Research Institute, Menlo Park, Calif., has been appointed to the newly constituted 19-member Science Information Council of the National Science Foundation, Washington 25, D.C.

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Robert I. Wishnick, F.A.I.C., president of Continental Carbon Company, announces plans for the expansion of the company's Carbon Black plant at Ponca City, Okla., to raise its capacity to 75,000,000 lbs. of oil furnace blacks annually.

Dr. William H. Bowman, F.A.I.C., general manager, Organic Chemicals Div., American Cyanamid Co., New York 20, N. Y., announces that Eugene C. Medcalf has been named manager of the intermediates department.

Dr. Charles C. Price, F.A.I.C., director, Harrison Laboratory of Chemistry of the University of Pennsylvania, Philadelphia, Pa., speaking at the December 11 conference on chemical research, cited the rising cost of education in chemistry, and revealed that the annual budget of the Department is now over \$900,000. There are 150 graduate students and 120 undergraduates majoring in chemistry, and 1100 other students taking chemistry courses at the University of Pennsylvania.

(See page 69 and following)

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Time and Talents Wisely Used

Dr. Bernard S. Friedman, F.A.I.C.

Research Associate, Sinclair Research Laboratories, Inc., Harvey, Illinois.

(Acceptance address when the author received the Honor Scroll of the Chicago AIC Chapter, Oct. 8, 1958, in Chicago, Ill.)

LEE A. DuBRIDGE, president, California Institute of Technology, recently said: "There is no more . . . difficult problem for a free people than to identify, nurture and wisely use its own talents." I should like to talk about how that last phrase, "wisely use its own talents," applies to industry's use of its chemists.

According to the 1955 Fraser report, about 2/3 of the research chemists in the U. S. are employed by industry. This means that in 1958 56,000 of the 85,000 American Chemical Society members are working for industrial establishments.

But of these 56,000 industrial chemists, only about 20,000 or less are research scientists; the others do the very necessary work of laboratory assistants, analytical services, librarians, patent agents, chemical salesmen, technical service, market surveys, advertising, news writing, manufacturing and administration. Without the help of these team-mates the research scientist would be quite ineffective.

The question is: How wisely does industry use these 20,000 research chemists? These are the scientists whose ingenuity and proficiency helped to give us new antibiotics and

other life-saving drugs, powerful insecticides, synthetic fibres, 100-octane gasoline, synthetic rubber, plastics, rocket fuels, and lubricants for the trans-Atlantic jets. If it happens that these scientists were only moderately well-used, and in spite of that accomplished all of these things, think how much more they could have done had their time and talents been fully utilized!

A second question is in order: How does each of these individual research chemists use himself? Does he actually make wise use of his own time and talents?

Let us see what a proficient research chemist does during his working day. He is for the most part a kind of do-it-yourself traffic manager of research operations. He maintains between himself and others a flow of ideas, research suggestions, and reports. He arranges for the testing of research ideas (usually by himself). He designs the experiments, selects and requisitions the necessary equipment, chemicals and supplies. After a test is performed he distributes products for analysis, and receives and records the analytical data. To streamline these operations he must keep them moving on the right track in

the right directions. This means the research chemist must have a good sense of value of time—his own time and that of his fellow workers and employer.

Some people learn the value of time the hard way. In my graduate school days while I was working for Prof. Roger Adams, it was decided that we would synthesize some derivatives of possible value as local anaesthetics. For this we needed a chlorinated ketone. Prof. Adams instructed me to order that from the supply house. This I did, but knowing that there would be some delay in the shipment of the chemical, I decided I would prepare some of it myself. So I obtained a cylinder of chlorine, redistilled a batch of commercial ketone we had on hand, set up equipment to chlorinate the ketone in the vapor phase, and within a week had a fairly large amount of the chlorinated ketone. Now all I had to do was fractionate the product to separate the pure compound. This required a more efficient distillation column than was available to us students, so I proceeded to design and pack one for this work. About then, Prof. Adams came by my lab, noticed all the equipment on my desk, and asked what I was up to. When he found out, he became quite angry and proceeded to give me a lecture on the value of a research chemist's time.

It was my job, he said, to synthesize chemicals never before pre-

pared, or those which could not be borrowed or purchased. One was not to spend his time making something that could be bought. If there was a delay in the purchase, there were other experiments one could be doing which did not require special chemicals. . . . This was my most striking lesson in the economics of research time.

Another lesson in research economy was given me in my first year in an industrial laboratory. At Universal Oil Products, Prof. Ipatieff assigned me the task of synthesizing pure hydrocarbons to be used in the studies he was undertaking. Being fresh out of a school noted for its interest in synthetic chemistry, I felt happy carrying out this assignment. Every time I succeeded in getting a 10% increase of product from a well-known chemical reaction, I "glowed" with success. Slowly the truth dawned on me. Again I was preparing something that could be bought. Luckily for me, I was then assigned to study the action of certain catalysts on one of the pure hydrocarbons I had prepared—so the time spent on "preps" was not a total loss.

I recall that Prof. Ipatieff told me as he told his other staff members: "Friedman, one-half of your time is for the company, and one-half is for your chemical soul." He meant that one-half of our time would be devoted to development research and the other half of our time (for our chemical

soul) would be devoted to the exploratory research.

We had a wonderful time working on that basis. Each of us had a personal lab assistant or two who carried out a development project under our immediate supervision. We planned the work of our assistants, correlated the results, and wrote the reports. The rest of the time we catered to our chemical soul, exploring for new leads, searching the literature for new clues, doing experiments to elicit new information on chemical mechanisms. It has been my experience at U.O.P. and at Sinclair that many of our best industrial achievements have been developed from the clues uncovered in work for one's chemical soul.

The point is that by a wise balance of exploratory and development research and with an adequate staff of laboratory assistants, a research chemist is able to make optimum use of his time and talents.

What is it that the chemist needs in order to work effectively and proficiently? Certainly he needs proper laboratory space, adequate equipment and supplies, the latest instruments, an up-to-date library, help from the auxiliary staff, such as dishwashers, mechanics, glass-blowers, janitors, stenographers; he also requires engineering advice and coordination, patent counsel, and finally stimulating and intelligent leadership. In most of our industrial laboratories these facili-

ties and services are furnished as a matter of course. In fact we chemists are inclined to accept them without wondering how much this costs per man, that is per research chemist. In 1954 the NSF Survey indicated an overall cost, for each man doing research, including salary and overhead, of about \$20,000 to \$23,000. In 1958 the figure should be about \$25,000. If reckoned on the basis of research chemist or scientist, the figure will be near \$35,000.

Is the research chemist worth all this money? The answer is, "It depends upon whether or not proper use is being made of the research chemist—how he uses himself, and how the company uses him." Do I imply that there are companies that will spend that kind of money to provide all those services mentioned, and still not use the research chemist to his, and their own, best advantage? I do imply that. But I should make one thing clear. I am not talking about my own company, or even about the petroleum industry, but about a problem of the unwise use of chemists which does exist in some of our major industrial research establishments.

This brings me to the main point. These industrial laboratories, few in number but employing a great many chemists, simply do not furnish adequate numbers of personal assistants to their research chemists. Perhaps I had better define my terms. By re-

search chemist, I mean a person who possesses creative talent and intellectual curiosity, who has had the requisite experience and training ordinarily obtained in graduate school and/or while on the job. A college graduate fresh from school is not yet a research chemist; he must work as a personal assistant or apprentice to a qualified research chemist until he obtains the necessary experience and training. But this is not enough. He must eventually demonstrate creativeness, resourcefulness and good research judgment before he can make the grade. There is no closed caste system based on college or graduate school degrees, at least not at Sinclair. As the apprentice grows in skill and knowledge and exercises ingenuity, he will be given small projects, then larger, more difficult ones, until one day he is functioning as fully qualified research chemist supervising his own assistants or apprentices.

Let us think about it this way. Suppose you were a laboratory director with X dollars to spend for a research staff. With these X dollars you could employ 6 Ph.D.'s (or equivalent), or 12 assistants, or else you could have 4 of each. What would you do? Some companies would hire the 6 "doctors," and perhaps from a certain view that would be a kind of bargain (greater total scientific experience and training, and a larger variety of skills). But let us ask, what kind of a bargain is it for the research

scientist who must work without an assistant? What he often will find is that he has bought a job where most of the time he will not be doing the work for which he was trained. He would be like a physician taking care of his patients in a hospital where there were no nurses, technicians or internes.

A company employing a low ratio of assistants to research chemists is not getting full value from its investment in research salaries. For one thing, such a company will be handicapped by not having available these research assistants whom it can call up to take over sales, technical service, administrative, operating, and patent jobs, as these open up. Our research organization, and others, have made good use of this stockpile of potential talents. Many Sinclair executives in administrative, sales, technical service, and refinery departments got their start as laboratory assistants.

I know many arguments have been advanced against the idea of personal assistants for research chemists. At a recent panel discussion of the Chicago Section of the American Chemical Society, one research director said, "I'm not going to give an assistant to the research chemist so that he can sit with his feet on the desk." I would not, either. But I would judge each case on the basis of research output. Let us not mistake physical activities (the movement of arms, legs, and bodies) for productive effort; and the

lack of physical activity for day-dreaming. One good idea from a crystal-gazer may be worth millions of calories of physical activity. One thing more: When he made the quoted remark, was not the research director already admitting that the assistant can carry out the same laboratory experiments as did the research chemist he is helping?

Some research directors have argued that many Ph.D.'s lack creativity and the ability to push a project to completion, that it would not greatly increase their output to give them laboratory assistants. I agree that it would be a waste to provide the research chemist with an assistant if the researcher did not make intelligent use of his own time and that of his team mate. Each and every chemist must be considered on an individual basis. It is unwise to establish a general policy of no assistants because of poor results obtained with a few of the staff.

Another panelist at the A.C.S. session stated that he was not too concerned about a research chemist not working at his top level of skills all the time. He did not believe it possible for a human being to function as a creative chemist for long stretches; the chemist would need something to do when he was not "creating." I agree that a chemist can not be creative all the time, but that does not mean he should spend the whole day watching drops come out of a fun-

nel into a Grignard reaction pot. No, not even one hour, for this is what a high school graduate can do just as well.

Let us free our research man from routine tasks so that he will have time to correlate and evaluate data; time to plan and devise new experiments; time to search the literature for new leads and to keep abreast of new developments; time to converse with fellow scientists and engineers; time to dream up and try out the "crazy" new idea; time to talk to salesmen and to look through catalogues for new chemicals and equipment; time to attend technical meetings and lectures; time to do all this while his assistant keeps the all-important experimentation going forward on his projects.

One director remarked that many discoveries have been made as a result of close observations of chemical reactions to note color changes, appearance of precipitates, heat evolution, etc., and for that reason he wanted his research chemists to run each and every experiment. He, therefore, would go slow in providing assistants to these chemists. I suppose this is the director who is happy to see the Ph.D. watching the drops coming out of a funnel because one day he might note something unusual happening in the flask. This is a good way to squander research money. The research chemist will want to do the crucial experiment himself, but he

should let his assistant run the follow-up tests under his close supervision. The research chemist should spend most of his time in the same room (working at his desk or at the bench) where he can supervise each test. If the results of an experiment show up unexpectedly poor, or are unusual, then would be the appropriate time for the research chemist to take over and re-do the experiment himself.

Some scientists work more effectively alone, and some projects are so difficult, complex, or delicate, that only the most highly trained scientists can carry out the necessary experimental manipulations. These men neither want, nor need, an assistant. But if their work involved a fair amount of repetitive and routine operations, which an assistant could do, I would try to educate them about the facts of life concerning the wise use of their talents.

If we regard ourselves, and wish to be so regarded by others, as professional chemists, let us live up to the minimum standards of a professional as defined by the late Supreme Court Justice Brandeis and now part of the Taft-Hartley Act: Here are three of these minimum standards that should give us some thought:

(1) His work shall be predominately intellectual and varied in character as opposed to routine mental, manual, mechanical, or physical work. (And I submit, this excludes much of the work-day operations now being performed by research chemists.)

(2) His work shall involve the con-

sistent exercise of discretion and judgment in its performance. (Does that mean counting drops?)

(3) His work shall require knowledge of an advanced type in a field of science which knowledge is customarily acquired by a prolonged course of specialized intellectual instruction and study in an institution of higher learning. (Does one require all that knowledge to take a melting point?)

The beginner must learn by doing. If he is to supervise an assistant, the research chemist must have had prior personal experience with the manipulations or the equipment. Generally, it takes a year or two to get this experience, but even this period of indoctrination can be foreshortened, and the safety of the laboratory increased, by putting the "green Ph.D." with an experienced assistant who will show him the ropes during his period of "basic-training." I was lucky to have a most competent assistant in my first years in industry. He taught me how to operate high pressure autoclaves and flow reactor equipment, and how to handle hazardous chemicals. He even drilled me in how to keep a good record of the lab experiments in my research notebook.

The problem of proper use of scientific personnel is not a new one; it has received considerable attention in the past. So much progress has been made in the last decade by the petroleum industry, for example, that I was afraid that in devoting this paper to the subject, I would be belaboring a dead issue. However, I have been assured by friends and acquaintances

TIME AND TALENT . . .

in some of the major chemical and pharmaceutical companies that it is not at all a dead issue. My estimate is that one-fourth to one-third of the country's research chemists are inadequately or improperly used through their own fault and that of their management.

However, there are reasons for being optimistic about the future. Chemists are more aware of the need to make wiser use of their own time and talents, and it is reasonable to expect that research managements will look into this matter as we call attention to it.

We can foresee a time when salary differentials will make it even more mandatory for management to see that the "doctor operates and the nurse sterilizes the instruments."

We can foresee the time when the professional societies which claim to represent the chemists' best interests will take effective steps to promote their best usage. And in this I hope the AIC will lead the way.

We can expect that our graduate schools will in the future send us highly trained scientists who have been taught to make wise use of their time and talents (and who will not accept positions in industrial laboratories where research chemists are seen frittering their efforts away on repetitive, routine operations).

Making proper use of research chemists is a two-way job. It calls for

management to do its share by supplying personal laboratory assistants or apprentices as needed. It calls for research chemists to make sure their time and talents are wisely used—to the end that they will have more to show for their own efforts over the years; to the end that they will render greater service to their employers, and to the end that they will return the greatest good to that society which made possible both their training and work opportunity.

If we go to such great pains to identify and educate our none-too-numerous gifted children and seek to inspire them to become the nation's scientists of tomorrow, who, we hope, will discover the cure for cancer, invent the fuel for the space-ship to the moon, develop an economic process for desalting sea water, and perhaps give us the weapon to wage peace instead of war—if we go to such pains to find and nurture these rare talents, let us be real sure each and every one of them is, in the end, properly used—wisely used.

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Bernard S. Friedman, Chemist and Citizen

Dr. Johan A. Bjorksten, F.A.I.C.

*President, Bjorksten Research Laboratories for Industry, Inc.,
Madison, Wisconsin*

(Presented when Dr. Friedman received the Honor Scroll of the Chicago AIC Chapter,
Oct. 8, 1958, at the Furniture Club of America, Chicago, Ill.)

A HUNDRED miles S. W. from here in Streator, Illinois,
Was born the hero of today, a nice and healthy boy.
In school he did so very well that at 12 years of age
He graduated from 8th grade, and felt like a sage.
Three years of high school was enough, and to the best of knowledge
When aged 15 our Bernard was qualified for college.
But since his family was large, and money not aplenty
Bernard then earned his way by selling shoes, till nearly 20.
Ambition seized him then, and prodded by his father
He said, "I know I can sell shoes, but I'd go to college rather."
Working his way half time he still made the highest marks in town
But he kept shifting subjects, till the Dean called him in,
with a frown,
And said, "Friedman, you may be brilliant but you have
to settle down
And furthermore I'll recall to mention in this respect
You have had no science at all, and this you must promptly correct."
So Bernie, scared almost stiff, rushed into the first classroom
he could see
And that happened to be one where they just taught chemistry.
The subject caught his fancy; he stuck to it with intent
And he got his degree in '30 in the top one per cent.
Teaching at Illinois he earned his living and paid his loan
And helped his younger brothers to build careers of their own.
He concentrated on work, but from the city's din
He would go home and relax with piano and violin.
After three years of teaching he entered industry.
He had offers from petroleum and also from pharmacy.
But Egloff and Ipatieff won out and he went with UOP
And joined them in laying the groundwork of petrochemistry.
The next speaker tells more about that—so I shall go on
And tell about Bernie's lovely wife and daughter and son:

... CHEMIST AND CITIZEN

In 1938 he married his college sweetheart Estelle
Whom he had met at a dance at his frat, where she was the belle.
I'd like to introduce Alice, their daughter, as pretty as she is smart
She's a sophomore in high school, interested in piano and art.
Their son Richard has won a national merit award and a prize
in German as well
He is studying physics and engineering in Ithaca, at Cornell.
In 1948 Bernard joined the staff of Sinclair
And many are the deeds of skill which he accomplished there.
But with all other interests, again and then again
He was of help to friends and colleagues as an active citizen.
He was chairman of committees of our Institute and ACS
And the Chicago Technical Societies Council he helped rescue
from dire distress.
He helped to plan and organize the Chicago Conference on
Youth Career
And through the shoals and currents this endeavor did he steer.
On the Mayor's Committee for School Board Nomination
He represented the technical societies with distinction and elation.
He served as president of the Technical Societies Council and
chairman of Chicago AIC
And if anyone enjoyed the liking of his colleagues it was he.
Now he is also chairman-elect of Chicago American Chemical Society
And of all the chairmen they've had he will be the most polite
and quiet.
Along with all he has served as director at Temple, Schools,
Journals, and Society.
Of committees domestic and foreign, Boy Scouts and Parent-Teacher
Association, with alacrity and anxiety.
To specify and count still more the night would not suffice
And therefore I shall yield the floor, but first I'll summarize:

Toward high goals in Science
You've traveled far, Bernard.
Hard work and self-reliance
Have gained their just reward.
Your self-less deeds are ample,
I come to it again,
You've set us an example—
Chemist and Citizen.

Bernard Friedman—A Creative Chemist at Work

Prof. William E. Parham

Professor of Chemistry, University of Minnesota, Minneapolis, Minn.

(Presented when Dr. Friedman received the Honor Scroll of the Chicago AIC Chapter, Oct. 8, 1958, at Chicago, Ill.)

ON my first meeting with Bernard Friedman, six years ago, I was impressed with the rapidity with which he turns out good ideas; his remarkable productivity in the laboratory; his enthusiasm toward organic chemistry, and his broad knowledge of the chemical literature. It was easy to recognize in him the qualities of a truly outstanding research chemist.

An Illini myself, I feel that Bernard got off to an exceptionally good start by choosing the University of Illinois as his school for graduate study. But unlike the average student, he had some trouble choosing a major field of specialization. At first it was analytical chemistry, then biological chemistry, and finally organic chemistry.

Two papers resulted from his research in analytical chemistry: one with Prof. G. F. Smith of perchloric acid fame on the conversion of barium perchlorate to perchloric acid; and one with Prof. D.T. Englis on the detection of broth additives. This work on broth additives created an unusual problem—not a chemical problem but the almost impossible task of protecting his cans of chicken

soup from marauding classmates. He solved this problem by the simple expedient of labeling the cans, "Preserved with Formaldehyde!"

Bernard found it possible to combine his interests in biological chemistry and organic chemistry by doing research under Prof. Roger Adams. His first assignment was to synthesize some compounds which might be better local anaesthetics than Novocain. The syntheses were highly successful; however, as is not uncommon in medicinal research, "the patients died." Using petrochemical terms one would say the drugs were corrosive to human beings.

The next project with Dr. Adams was the study of the structure of the yellow pigment in cottonseed, which often caused poisoning of cattle feeding on cottonseed meal. This difficult problem had been tackled before by such eminent scientists as Paul Karrer of Switzerland and E. P. Clark of the U. S. Department of Agriculture. Bernard said that he did not spoil this problem by solving it; however, he contributed some work dealing with butadiene adducts of gossypol.

Prof. Adams was president or pres-

ident-elect of the A.C.S. during these years, and was often away from the campus on speaking tours. When Bernard would hit a real snag in his research on gossypol, he felt free to tackle problems on his own. One of these, a method for adding a 5-membered ring to the 9,10 position of phenanthrene, was described in his thesis. Another of these ideas appeared sensational enough to prompt Bernard to write it down on paper and dash to the registrar's office to have it notarized for possible patent protection. Thus Bernard had his first introduction to patent law, when he was later informed that the witness to a patent proposal must understand the invention. The idea was a good one. Bernard suggested that a sugar group be attached to potential drugs to solublize them in blood—a substitute for salt functions which are frequently corrosive. Essentially the same idea was subsequently and independently published by Prof. Karrer in Switzerland, and has been the subject of some interest to pharmaceutical research.

Bernard completed work for the doctorate and joined Universal Oil Products Company in February 1936. Here it was his good fortune to come under the direction of Prof. Ipatieff, the great pioneer in high pressure, catalytic chemistry (also first winner of the Honor Scroll Award of the Chicago AIC Chapter).

As a member of the Ipatieff team, Bernard worked on the reactions of pure hydrocarbons. Some of the results of these studies, published with Ipatieff, Pines, and Schmerling, include:

Cross-polymerization of Propene with Iso-olefins.

Some Unusual Reactions in the Reaction of Isobutene and Diisobutylene with Phenol.

Abnormal Addition of Thiol Compounds with Olefins.

Methods of Identifying Alkyl Phenyl Sulfides.

Synthesis of Pure Hydrocarbons.

He also worked on problems of immediate practical interest. In one of these he found what was causing the poor performance of some of the U.O.P. licensed commercial polymerization plants. His recommendation that water washing towers be installed to remove the trouble-making ammonia in olefin feed stocks solved the problem.

After a few years with Ipatieff, Friedman was made a project leader. With the help of George Hervert he studied methods of preparing synthetic detergents from thermal gasoline. This work was successful and a satisfactory detergent prepared from thermal gasoline and toluene was the result.

Next came a long period on high pressure processes, such as catalytic reforming to make high octane gasoline for automobiles, and hydrocracking to make aviation gasoline. Several patents were filed to cover

the results of these studies. In one of these, Friedman anticipates an operation that is currently of interest to the petroleum industry; a combination process whereby the hydrogen produced in a reforming step is utilized in a hydrocracking step to produce high octane light gasoline and low octane heavy naphtha suitable for feed to the reformer.

About 1943 the management of most leading petroleum companies decided to stop all research on reforming since the process based on molybdena catalyst was operating quite unsatisfactorily on a commercial scale. Bernard argued persistently for continuation of research for a newer and better catalyst, but instead he was asked to undertake a project on the separation of pure components from hydrocarbon mixtures. Bernard's argument was that U.O.P.'s chief source of income would come from gasoline processing royalties and not from separation operations—for the latter was only of interest to petrochemicals which were but a drop in the bucket, volume-wise, at the time.

Future events were to prove Bernard both right and wrong. Some years later Val Haensel was to develop a new reforming catalyst that rendered all previous operations obsolete. But in the last decade the petrochemical operations of the big oil companies have been greatly expanded, and the need for separation processes has grown accordingly.

Bernard did study separation processes. Some novel results of his work were covered in patents including:

1. The Use of Ag_3PO_4/H_2PO_4 Solutions for Separation of Lower Olefins.
2. The Use of RSO_3Ag/RSO_3H Solutions for Separation of Aromatics, and
3. Similar Use of Dinitriles.

Bernard left U.O.P. in 1945 to join a small plastics outfit as its technical director. Here Bernard did a little lab work, a lot of expediting, and even supervised some selling and business operations. However, he was unhappy with the lack of research activity, and so after a year resigned to become director of the newly established Basic Chemistry Division of the Quartermaster Research and Development Branch in Philadelphia. Here he planned and ordered the equipment for a new laboratory, but a cut in manpower was ordered by Congress, and the Chemistry Division found itself with a well-equipped laboratory, a director, a stenographer, but only two or three chemists. A patient man might have waited until the manpower problem was resolved; however, Dr. Friedman has never been patient as far as research productivity is concerned.

Back to industry he went in 1948 to take the job of assistant director of the Catalysis Research Division at the Sinclair Research Laboratories in Harvey, Ill.

He was now past the much discussed age bracket of 25-35 when sci-

entists are supposed to be most creative. If this is true it certainly did not apply to Dr. Friedman, for this was the beginning of his most productive period of research. He did the pioneering work on the Sinclair process for making naphthalene from petroleum. Patents have been issued in his name as inventor or co-inventor covering such developments as:

1. A process for expanding the chain length of dienes by condensation with ethylene.
2. A process for converting olefins to alcohols.
3. Intact alkylation of aromatics with scission-susceptible olefins.
4. Recovery of residual oil from depleted fields by miscible drive, and
5. Reforming with carbon catalyst.

Bernard is justly proud of the patent on oil recovery from depleted fields since this process and its modifications may result in recovery of many millions of barrels from "depleted" fields.

He has published papers on the mechanism of aromatic alkylation with branched olefins. Several others are being readied for delivery at the 1959 World Petroleum Congress and the 1959 A.C.S. meeting. Many more of his processes are covered by patent applications now on file.

Bernard is author or co-author of over 20 publications in technical journals and has some 35 patents and applications to his credit. But last, and far from least, is the high regard by which he is held by his associates. He is truly an inspiring example of a research chemist to his associates.

Presentation to Dr. Friedman

THE Honor Scroll Award of the Chicago AIC Chapter was presented to Dr. Bernard S. Friedman, F.A.I.C., research associate, Sinclair Research Laboratories, Inc., Harvey, Ill., October 8, 1958, at a dinner meeting at The Furniture Club of America, Chicago, Ill., preceded by a reception through the courtesy of Sinclair Research Laboratories, Inc.

Albert S. Henick of the Quartermaster Food & Container Institute, chairman of the Chapter, presided. Dr. Johan A. Bjorksten, president, Bjorksten Research Laboratories for Industry, Inc., Madison, Wisconsin, spoke on "Bernard Friedman—Chemist and Citizen." Prof. William E. Parham of the University of Minnesota, Minneapolis, Minn., discussed "Bernard Friedman—a Creative Chemist at Work." Dr. Emil Ott, AIC president, presented the Honor Scroll to Dr. Friedman, who responded with an address on "Time and Talent Wisely Used." (See preceding pages for these papers.)

The citation on the Honor Scroll to Dr. Friedman reads:

... in grateful recognition of his long and devoted service in promoting the profession of chemists, of his constructive leadership in civic, vocational and technical organizations and of his many contributions to the science of chemistry.



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The Serious Problem of Depreciation

Because of inflation, the cost of replacing a facility today is considerably higher than its original cost 20 or more years ago. Yet, for tax considerations, depreciation allowances are currently based on the relatively small number of dollars originally paid for such facilities. These allowances are quite insufficient to equal what now has to be paid out when the old facilities are modernized or replaced. Our records show that a coke oven battery constructed in 1924 had increased in cost by 468% when replaced in 1953. In another instance, battery construction costs in 1947 spiralled some 123% by 1957. When

depreciation is calculated on original costs, United States Steel, and all other companies, are caught in an inflationary vise. When real depreciation is under-stated, profits are over-stated, and this results in an erosion of capital through taxation.

—Bennet S. Chapple, Jr.
(Speaking before the 38th
National Meeting of the
AIChE)

Education Directed to Mediocrity

The essential difficulty with our education today is that it is directed toward mediocrity. Through a misguided attempt to serve the democratic principle of equal rights for all, we have merely succeeded in reducing educational standards to the near-vanishing point. Because we know and understand the need for educated men in the world today, we must accept the responsibility for doing something about this problem. And since the only practicable solution at this late date seems to be that of insuring the very best training for the exceptionally talented individual, this is what must be done, and it is part of our responsibility to see that it is done. We cannot acquiesce in low standards.

—B. D. Thomas
Battelle Technical Review

Corning Glass Works announces that it will establish a branch plant in Australia for the manufacture of television bulbs.

Communications

Interim Report from Alaska

To the Editor:

The thermometer has been 40 to 50 below zero since January 4 . . . or it may be fatigue from the heavier schedule during the Fall that has dulled my spirit a bit . . . but I did put together a framework for the paper and shall, when things fit together, write it up and send it along for a future issue of *THE CHEMIST* . . .

Dr. John R. Bowman, F.A.I.C., and his wife (who spent the holidays in Fairbanks to see how Alaskans live in the winter) seemed to have had an unusual time. He was here over a week before it got colder than about 15 below. He went to Point Barrow. While he was gone, the cold moved in, so he got all the benefits of the Alaskan scene . . . but he really took care of himself . . .

—Dr. William S. Wilson, F.A.I.C.,
University of Alaska.

Request to Reprint

To the Editor:

We would like permission to reprint in *Isotopics*, a publication of the Cleveland Section of the American Chemical Society, an article which appeared in Vol. XXXV, No. 9, of *THE CHEMIST*. The article is by Dr. Otto Eisenschiml and is entitled, "The Scientific Manpower Problem."

—Edward A. Fletcher,
Editor, *Isotopics*.

Also a Challenge to the Student

To the Editor:

Thank you for the article on *THE AMERICAN INSTITUTE OF CHEMISTS*. Enclosed are copies of our December issue of *Chemistry*. You will find your story on page 9.

May we have permission to reprint "A Chemist Looks at Solar Energy," (by Merritt L. Kastens, F.A.I.C.) *THE CHEMIST*, Jan., in *Chemistry*? I feel this would be an excellent article for our purpose of interesting students in the field of chemistry—a challenge to the student, as well as to the creative chemist . . .

—Elisabeth Mitchell,
Assistant Editor, *Chemistry*.

Wants Format of 'The Chemist' Changed

To the Secretary:

I should like to see the Council, the Board of Directors, and the Editor of *THE CHEMIST* consider changing the format of the publication. Both dignity and lasting value would be served by increasing the page size to 8¼" x 11¼" (standard for most publications) and by separating the contents into a "Transactions" section and a "Current Affairs" section. Such a change would have several advantages.

(1) Page size would conform to that of other journals and it would therefore stack better on bookshelves.

(2) Being of standard page size,

it would no doubt better please advertisers who have already-prepared cuts and copy.

(3) It would permit the publication of longer articles of more lasting value.

(4) It would add to the dignity of the publication vs. the present form which tends to look something like an advertiser's flier.

If it is thought impractical to make all of the above changes, some consideration might be given to changing the publication schedule: issuing the above "Transactions" bi-monthly instead of monthly, and on the odd months issuing one- or two-page leaflets of current affairs and announcements.

—Dr. F. A. Lowenheim, F.A.I.C.
Rahway, N. J.

Editor's Note: The Council has appointed a committee to consider *THE CHEMIST* and make recommendations. All ideas from AIC members concerning the publication will be welcome.

Conclusion Confirmed By Survey

Dr. Otto Eisenschiml, F.A.I.C., writing on "The Scientific Manpower Problem" in *THE CHEMIST* (September 1958), concluded that scholarships were not the answer to the problem of attracting students to science, because students want from life these three things: "Income, Recognition, Security."

Robert E. Iffert, specialist for faculty and student services in the fed-

eral Department of Health, Education and Welfare, in December reported the results of a study by the Department which confirms Dr. Eisenschiml's conclusion.

The survey indicated that "buying students with offers of scholarships is a frustrating experience if the objective is to get able students through college. The most important single reason given by able students for withdrawal from college was lack of interest, or motivation . . . A dangling dollar, whether proffered by Uncle Sam or good old dad, will not buy motivation."

The Great Challenge

The greatest intellectual challenge in the world today is the composition and function of the single living cell . . . The story of life in the basic cell—the unit of which all other living things are composed—is the thing we must understand. When we do, we may be able to eradicate disease . . .

—Dr. E. C. Pollard
Yale University

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Highlights of the AIC Council Meeting

The 324th meeting of the AIC Council was held December 9, 1958, at the Chemists' Club, New York, N. Y. at 6:00 p.m., with President Emil Ott presiding.

The following officers, councilors, or alternates were present: Dr. M. Bender, Dr. D. M. Gans, Dr. L. A. Hall, Dr. H. B. Hass, K. M. Herstein, Dr. F. A. Hessel, Dr. D. B. Keyes, Dr. W. E. Kuhn, Dr. J. H. Nair, Dr. Emil Ott, Dr. W. R. Sullivan, Dr. Max Tishler, Dr. J. L. Wilson, and M. B. Williams. O. B. J. Fraser, to report for the Committee on Employer-Employee Relations, and Vera Kimball were present.

President Ott reported that he had presented Charters to the new Piedmont and Midwest Chapters, and that he had spoken at the December meeting of the Niagara Chapter. He was impressed with the intensity of interest in AIC objectives. "The need is there. The AIC is there. All we require is sufficient help to implement our activities."

Upon motion, the By-laws were amended to indicate that the dues for the 1959-1960 fiscal year will be: Fellows \$15.00; Members \$10.00, and Associates \$5.00.

The Committee on Honorary Members recommended that three AIC members be given Honorary Membership during the 1959-1960 year. These names were approved

and will be announced at the AIC Luncheon to be held at the 1959 Annual Meeting in Atlantic City, N.J.

The Council concurred in the recommendations for Chapter areas as made by the Committee on Chapter Activities (see page 540, December CHEMIST), but requested that the Secretary ask the Chapters if they approve the territory assigned to them.

A petition of AIC members in the Texas area for a Southwest Chapter was presented, and this new Chapter was approved.

The AIC representatives to the AAAS Council were instructed to inform our Council at its next meeting of any professional resolutions which may have been adopted by the AAAS Council.

The Committee on Ethics recommended that a period be placed after the word "advancement" in Point 11 of the Code of Ethics, and that the remainder of the statement be omitted to eliminate some of the misunderstanding that has occurred in the interpretation of Point 11. This recommendation was adopted. Point 11 now reads: "He shall not use any unfair, improper, or questionable methods of securing professional work or advancement."

Dr. Hall, chairman of the Committee to Implement AIC Objectives, presented the subject of THE CHEMIST, followed by a lively discussion. Upon motion, the President

was asked to appoint a Committee to study the matter; to determine the philosophy and policy for the publication; and to recommend what its objectives should be and how to implement them.

President Ott appointed the following Committee to study THE CHEMIST:

Dr. Max Tishler, *chairman*
Dr. Lloyd A. Hall
Dr. Arthur C. Cope
Dr. Wayne E. Kuhn as *ex-officio*.

Dr. Sullivan reported on plans for the New Jersey Chapter's meetings. (See "Professional Appointments," this issue.)

Mr. Williams announced that the Southern Research Institute, through the chairman of the Alabama Chapter, Dr. C. E. Feazel, had printed and donated to the AIC the petition forms to be used in the formation of new Chapters.

Dr. Wilson stated that the Twin City Chapter has 37 members, over two-thirds of whom attend meetings regularly. Lawrence Flett, Hon. AIC spoke at the Twin City Chapter meeting November 12. The Chapter is planning for the AIC Annual Meeting to be held in Minneapolis, Minn., May 11-13, 1960.

Dr. Gans reported that the northern district of the Ohio Chapter had participated in the 10th Annual Dinner of the Chemical Professions of Cleveland.

Mr. Herstein announced the meet-



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ing schedule of the New York Chapter. (See "Professional Appointments" this issue.)

Mr. Fraser presented the interim report of the Committee on Employer-Employee Relations.

Three new members of the Advisory Board of THE CHEMIST were approved for appointment: Bernard E. Schaar, P. J. Wood, and Dr. Joseph F. Abere to replace retiring members.

Mr. Williams, chairman, Committee on Chapter Activities, reported that interest had been expressed for the formation of AIC Chapters in San Francisco, Tennessee, North Carolina, Syracuse, and Pittsburgh. The most effective Chapter unit would have from 50 to 200 members, covering a radius of not more than 25 miles.

The Secretary's report showed that we now have a total active membership of 2849.

The President announced with

HIGHLIGHTS . . .

deep regret the deaths of the following members:

Robert Joseph Gnaedinger,
F.A.I.C., September 23, 1958.

Dr. A. Stuart Hunter,
F.A.I.C., October 2, 1958.

Harry S. Pickering,
Emeritus Fellow, November 1958.

The following Fellows were given Emeritus status:

Dr. William D. Coolidge

Harry M. Larmour

Zygfryd Rudolf

The following new members were elected:

FELLOWS

Bankston, Lowry W.

*Ammunition Inspection Specialist,
Field Service Dir., Bldg. 5681,
Army Rocket & Guided Missile Agency,
Redstone Arsenal, Alabama.*

Bucher, Robert L.

*Chemical Sales Engineer,
Skelly Oil Company, Kansas City, Mo.*

Cason, Dr. Louis F.

*Senior Chemist,
Minnesota Mining & Mfg. Co.,
2301 Hudson Road, St. Paul 6, Minn.*

Conant, Dr. John W.

*Senior Research Chemist,
Grand River Chemical
Div. of Deere & Company, Pryor, Okla.*

DeSimone, John A.

*Supervisor of Parenteral Drugs,
Warner-Chilcott Laboratories,
Morris Plains, N. J.*

Flynt, Loraine

*Assistant Branch Chemist,
The Coca-Cola Company,
P.O. Drawer 1734, Atlanta 1, Ga.*

Gier, Dr. Delta W.

*Professor and Chairman,
Dept. of Chemistry, Park College,
Parkville, Missouri.*

Guthrie, William D.

*Research Chemist,
Southern Chemical Cotton Company,
Chattanooga, Tenn.*

Hemphill, Julian

*Staff Chemist, The Coca-Cola Company,
P.O. Drawer 1734, Atlanta 1, Ga.*

Hopper, Everett S.

*Laboratory Supervisor,
The Coca-Cola Company,
P.O. Drawer 1734, Atlanta 1, Ga.*

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Kopacz, Boleslaus M.

*Southern Utilization Research &
Development Div., U.S. Dept. of
Agriculture, 1100 Robert E. Lee Blvd.,
New Orleans, La.*

Mandell, Dr. Leon

*Assistant Professor Chemistry,
Dept. of Chemistry, Emory University,
Atlanta, Georgia.*

Minor, Dr. John T.

*Research Group Leader,
Grand River Chemical Div. of
Deere & Company, Pryor, Okla.*

Radford, Richard D.

*Technical Director,
Seidlitz Paint & Varnish Company,
Kansas City, Mo.*

Rapaport, Gustave H.

*President, Food Products Corporation,
18th & Kansas Ave., Kansas City, Kan.*

Rendall, Dr. John L.

*Associate Director, Central Research
& Manager, Inorganic Products Project,
Minnesota Mining & Mfg. Company,
2301 Hudson Rd., St. Paul 9, Minn.*

Roberts, Gene M.

*District Manager, Jarrell-Ash Company,
Atlanta, Georgia.*

Ruckle, C. A.

*Chief, Missile & Launcher Unit,
Antitank Missile System,
Field Service Div., Maint. Br.,
Bldg. 5681, Redstone Arsenal, Ala.*

Schoeneman, Robert L.

*Chemist, Alcohol & Tobacco Tax Div.,
Internal Revenue Service,
Washington 25, D.C.*

Schultz, Dr. Donald R.

*Senior Research Chemist,
Minnesota Mining & Mfg. Co.,
Central Research Dept.,
2301 Hudson Rd., St. Paul 9, Minn.*

- Scott, Dr. Alfred W.**
Head and Chairman,
Div. of Physical Sciences,
Dept. of Chemistry, University of
Georgia, Athens, Georgia.
- Sheffield, Cliff C., Jr.**
Branch Chemist,
The Coca-Cola Company,
P.O. Drawer 1734, Atlanta 1, Ga.
- Wagner, Dr. Herman B.**
Director of Chemical Research,
TCA Research Center, Princeton, N.J.
- Whitehead, Dr. Thomas H., Sr.**
Professor of Chemistry,
University of Georgia, Athens, Ga.
- Wynn, Professor Winfrey**
Associate Professor of Physiology,
Emory University,
Emory University, Ga.
- Zemlin, John C.**
Director of Product Development,
Trancoa Chemical Corp.,
312 Ash Street, Reading, Mass.

MEMBER

- Minie, Vladimir**
Chemist, Southern Research Institute,
2000 Ninth Avenue, South,
Birmingham, Ala.

ASSOCIATES

- Cannon, John M.**
Will Corporation of Georgia,
890 Chattahoochee Ave., N.W.,
Atlanta 1, Ga.
- Gately, Lt. Michael P.**
Crisco Trailer Park, Box 278,
Madison, Ala.
- Hassig, Catherine A.**
Junior Chemist,
Thiokol Chemical Corporation,
Huntsville, Ala.
- Sharpe, James E.**
Senior Laboratory Technician,
Chemical Research Dept.,
Thiokol Chemical Corporation,
Huntsville, Ala.
- Sharpe, Max H.**
Chemical Engineer,
Army Ballistic Missile Agency,
Redstone Arsenal, Ala.

RAISED FROM MEMBER TO FELLOW

- Nocke, Henry H.**
Quality Assurance Coordinator,
Thiokol Chemical Corp., Redstone Div.,
Huntsville, Ala.

- Staub, John H.**
Chemist, Lansdale Tube Company,
Lansdale, Pa.

RAISED FROM ASSOCIATE TO MEMBER

- Fisher, Dr. Bruce S.**
*Research Chemist, E. I. duPont de
Nemours & Company, Elastomer
Chemicals Dept., Jackson Laboratory,
P.O. Box 1407, Wilmington, Del.*
- Ludwig, Dr. Richard E.**
*Research Chemist, E. I. duPont de
Nemours & Company, Eastern
Laboratory, Gibbstown, N. J.*

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Supervisory Physical Science Administrator. \$12,770 a year. Broad, responsible and progressive experience in biochemical and biological investigations. Capable of planning, executing and evaluating the work of biochemists, engineers and biologists. Apply to Civilian Personnel Office, Fort Detrick, Frederick, Md.

Electronic Development Engineers. \$500-\$750 month. To develop and design nuclear equipment for commercial applications; able to carry project from bread-board stage to release of drawings on completed product. B.S. in E.E. plus experience in design of electronic equipment. Location New England. Box 21, THE CHEMIST.

Executive chemist or chemical engineer. \$15,000-\$20,000 a year. Experienced in carbon paper, typewriter ribbons, allied materials. Able to direct research, development and manufacturing processes, and act as liaison between development group and top management. Location South. Box 23, THE CHEMIST.

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Assistant Technical Director. Dye-stuffs. Desirable: Ph.D. chemistry; Speaking knowledge of German, French or Spanish. Necessary: Technical knowledge of uses and applications of dyestuffs; ability to cooperate with sales force. Salary up to \$20,000. Box 25, THE CHEMIST.

Chemist Available

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Plastics Chemist. 14 years experience in product development and applications; epoxies, polyesters, laminates, adhesives, films. Box 22, THE CHEMIST.

For Your Library

Economics of Atomic Energy

By *Mary Goldring*. *Philosophical Library*. 5½" x 8¾" 179 pp. \$6.00.

Beginning with a vivid description of the Windscale Works of the United Kingdom Atomic Energy Authority, Miss Goldring presents a clear picture of the atomic industry as it has developed in Great Britain and makes interesting comparison between the British approach to the harnessing of nuclear power and that of the United States. Atomic Industry, Atomic Power, and Atomic Investment are the three divisions of the book, written to give the layman some conception of what is involved in atomic energy production, and to explain the indissoluble relationship between research for atomic weapons and that for "atoms for peace." She shows how and why "the bomb precedes the power station." May her book find a large audience!

—Dr. Frederick A. Hessel, F.A.I.C.

Advances in Petroleum Chemistry and Refining

Vol. I. Edited by *Kenneth A. Kobe* and *John J. McKetta, Jr.* *Interscience Publishers, Inc.* 641 pp. 6¼" x 9¼". \$13.50.

This is the first in a series on the petroleum and petrochemicals industry, which has become so diversified in recent years that those working in one phase have lit-

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tle knowledge of what is going on in other branches of the field. To inform the research chemist how the engineer is adapting test-tube results to large-scale manufacturing and to give the engineer a glimpse of what he may expect from the man in the laboratory, the contents of this book are divided into five main sections: Economics and Future Trends; Unit Operations and Design; Refining Processes; Petrochemicals, and Mechanical Equipment. Most of the contributors are connected with major oil companies as economists, chemists, or engineers. Most of the chapters have been written by two or more men from the same company, as in the case of The Oxo Process, representing the combined work of the director of Esso Research at Baton Rouge, an administrative assistant there, and a section head in the Chemicals Development Division of Esso Research at Linden, N. J.

This is an unusual and interesting approach to the study of an industry and the series should be well-received.

—Dr. Frederick A. Hessel, F.A.I.C.

Introduction to Protein Chemistry

By *S. W. Fox* and *J. F. Foster*. *John Wiley & Sons, Inc.* 459 pp. 6" x 9". \$9.50.

In 24 comprehensive chapters are covered the preparation and the physical and chemical properties of amino acids, peptides and proteins; structure of peptides and proteins; electrophoresis; blood proteins, hormonal proteins; certain biological functions. There is a bibliography and a subject index. The story of proteins, the compounds most intimately associated with life, has been admirably presented in this beautifully printed textbook.

—Dr. Henry Tauber, F.A.I.C.

Chemistry of the Lipids as Related to Atherosclerosis

A Symposium compiled and edited by I. H. Page. Charles C. Thomas, publisher. Springfield, Ill. 1958. 342 pp. \$8.50.

The 18 contributors to this volume, from industry, university and government, are well known for their work in lipid research. The following subjects are reviewed: Chemistry of lipids and atherosclerosis; unsaturated acids; fatty acids; triglycerides; phospholipids; sphingolipids; tissue and plasma lipoproteins; digestion and absorption; turnover of plasma lipids; lipoprotein lipase; biosynthesis of cholesterol; lipid metabolism. This symposium was arranged because the problem of atherosclerosis and that of coronary artery disease is of great concern not only to the academic investigator but to those in industry as well.

—Dr. Henry Tauber, F.A.I.C.

Chemical Books Abroad

By Dr. Rudolph Seiden, F.A.I.C.

Ferdinand Enke Verlag, Stuttgart-W: *Chromatographische Methoden in der analytischen und präparativen anorganischen Chemie*, by E. Blasius; 1958, 390 pp. (139 ill., 40 tables); DM 99.—This book covers the theory of chromatography and the practical applications of its methods to analytical and preparative inorganic chemistry, with special consideration for the various types of ion-exchange equipment, with detailed information as to techniques. Hundreds of literature references reach into the year 1956.

Dr. Dietrich Steinkopff Verlag, Darmstadt: *Gleichgewichts- und Wachstumsformen von Kristallen*, by B. Honigsmann; 1958, 173 pp. (79 ill.); paperbound DM 26.—A monograph for those interested in the phenomena of crystals, their forms, preparation, and the laws they follow when growing, be it in the laboratory or naturally.

Birkhaeuser Verlag, Basel 10: *Chemie der Azofarbstoffe*, by H. Zollinger; 1958, 308 pp.; sFr. 36.25.—A pupil of the famous Professor H. E. Fierz-David, a man with practical and research experience in Europe and America, wrote this carefully



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planned textbook for those who want an up-to-date coverage of the chemistry of azo dyes. Particular attention is paid to the diazotizing methods and mechanisms, isomerism, decomposition and coupling reactions, the various types of azo dyes and their applications in industry.

Wissenschaftliche Verlagsgesellschaft, Stuttgart 1: *Moderne Arzneimittel, Nachtrageband 1956-1958*, by H. Helwig; 1958, 317 pp.; DM 36.—A supplement to the fine book on pharmaceuticals available in Germany which was reviewed in these pages (*THE CHEMIST*, February, 1957). It describes additional drugs developed since 1956. They are arranged in the same useful manner; i.e., according to chemical and pharmacological viewpoints.

Verlag Chemie, Weinheim/Bergstr.: *Medizin und Chemie, Vol. VI*; 1958, 591 pp.—Another impressive report on the research work accomplished by the Farbwerke Hoechst—a member of the former "I. G. Farbenindustrie" (see *THE CHEMIST*, January 1958)—which now celebrates its 75th anniversary. The story of its continued progress unfolds in text, tables, graphs, pictures, and numerous literature references. Emphasis is put on the astonishing attainment during the last 16 years. The highly qualified contributors to this exceedingly well-made book present papers on such timely subjects as oral anti-diabetica, anesthetics, insecticides, arsenicals, pyrazolone derivatives, adrenal and other hormones, iodothyronines, and antibiotics; discussed are also such problems as influence of parasites on the tuberculin reaction, aggregation of isolated fibrinogens, virus-cell interrelationship, etc.

ABOUT AIC MEMBERS

A new weekly newsletter, *Washington Science Trends*, began publication in September, to report scientific and engineering activities in government agencies and offices. For information query the publication at 1120 National Press Bldg., Washington 4, D. C.

The two-week "Gas Chromatography Course on Analysis of Gases and Liquids," first presented in January, will be given again in March and May by the Podbielniak Institute. For information: The Registrar, Podbielniak Institute, 341 E. Ohio St., Chicago 11, Ill.

The Lecture Seminar Schedules sponsored by the North Jersey Section, Inc., American Chemical Society, are: "Stereochemistry," commencing Jan. 27 at 7:00-9:00 p.m. and continuing every Tuesday through April 2, at Seton Hall University, South Orange, N. J.; "Design of Chemical Experiments" commencing Feb. 3 at 7:00-9:00 p.m., and continuing through April 14, at Celanese Auditorium, Norris Court, Summit, N. J.

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Dr. Walter J. Murphy, Hon. AIC, announces that an international edition of *Industrial & Engineering Chemistry*, a monthly publication of the American Chemical Society, will be introduced in July, 1959, to be called *I/EC-International*.

Dr. Bernard L. Oser, F.A.I.C., has been appointed lecturer at Columbia University in the Institute of Nutrition Sciences in the School of Public Health and Administrative Medicine. Beginning with the Spring semester, he will lecture to graduate students on "Food Regulation and Safety Evaluation." He is president and director of Food & Drug Research Labs., Inc., Maspeth 78, N.Y.

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Dr. Albert C. Zettlemoyer, F.A.I.C., professor of Chemistry, Lehigh University, Bethlehem, Pa., has been appointed to the advisory board of the "Advances in Chemistry" series by the American Chemical Society. He is also director of the National Printing Ink Research Institute of the University, which will be host for the 5th International Conference of the Printing Research Institutes to be held June 8-13, at Lehigh University.

Sol Shappirio, F.A.I.C., announces the removal of his offices for the practice of patent law to 1345 Pennsylvania Ave., N.W., Washington 4, D. C.

John B. Calkin, F.A.I.C., president, Calkin & Bayley, Inc., industrial consultants of New York, announces the appointment of Dr. Christian V. Holland as vice president in charge of pharmaceuticals and fine chemicals.

Dr. S. M. Martin, Jr., F.A.I.C., vice president of Thiokol Chemical Corp., Bristol, Pa., attended the listing ceremony at the New York Stock Exchange when the company was first listed on December 10.

R. E. Horsey, F.A.I.C., vice president in charge of sales, the Sindar Corporation, New York 36, N. Y., announces that Robert L. Williams will be manager of the Chicago Branch Office.

Dr. Harvey A. Neville, F.A.I.C., provost and vice president of Lehigh University, Bethlehem, Pa., announces that four new courses in chemistry are to be added to the curriculum.

Bernard R. Krashin, M.A.I.C., president, Colton Chemical Co., a division of Air Reduction Co., Inc., Cleveland 14, Ohio, announces that prices have been reduced on Vinac RP-250 Powder (redispersible polyvinyl acetate).

John J. Levenson, Jr., F.A.I.C., executive vice president, Century Chemical Corp., has been elected a member of the Board of Directors of Wilson Organic Chemicals, Inc., Sayreville, N. J.

The Atlantic Refining Co., Philadelphia, Pa., has established the professional positions of research associates in its research and development department, to utilize outstanding scientists and engineers who can contribute most without being encumbered by administrative responsibilities.

Dr. Bernard L. Oser, F.A.I.C., director of Food & Drug Research Laboratories, Inc., New York, was the moderator of a joint meeting between the Food Law Institute and the Food & Drug Administration, November 25, in Washington, D. C. The subject was, "Challenges to Science Posed by the Food Additives Amendment."

Jesse H. Starkman, F.A.I.C., recently joined the Gillette Safety Razor Co., Boston 6, Mass, as senior chemist, cosmetic research and development.

Dr. Eugene G. Rochow, F.A.I.C., of Harvard University, has been selected to represent the Division of Inorganic Chemistry on the Council of the American Chemical Society.

Calkin & Bayley, Inc., industrial consultants, 50 E. 41st St., New York 17, N. Y., announce the appointment of David W. Miller as director of operations research and statistical analysis.

More than 3600 top-ranking scientists attended the Gordon Research Conferences held in New Hampshire this summer.

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Dr. Alexander Silverman, Hon. AIC, and Mrs. Silverman celebrated their fiftieth wedding anniversary on December 16th. Dr. Silverman, authority on glass, is professor and head, emeritus, of the Chemistry Department, University of Pittsburgh.

The Electrochemical Society, Inc., is soliciting papers for its meeting May 3-7, 1959, at the Sheraton Hotel, Philadelphia, Pa. Manuscripts should be sent to the Managing Editor of the Journal of the society, at 1860 Broadway, New York 23, N.Y.

"All science is international and must necessarily lead to international amity, friendship and understanding. The combination of *H* with *O* to form water is not British, not French, not Russian, not American, but is the expression of one fact in the universal language of science, and all those who speak this common language are friends."

—Albert Parsons Sachs, F.A.I.C.
Speaking before the 40th anniversary meeting of the American Section of the Societe de Chimie Industrielle.

The Griffith Laboratories, Inc., moved their Eastern plant and offices to 855 Rahway Ave., Union, N. J.

The 14th Purdue Industrial Waste Conference will be held May 5-7, 1959, in the Purdue Memorial Union Building, Purdue University, Lafayette, Indiana. For information: Don E. Bloodgood, professor of sanitary engineering, Purdue University.

The tenth annual Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy will be held March 2-6, at the Penn-Sheraton Hotel, Pittsburgh, Pa. For information: Dr. Edwin S. Hodge, general chairman, Mellon Institute, Pittsburgh 13, Pennsylvania.

Graduate Research Fellowships are available for 1959-60 in the Carver Foundation of Tuskegee Institute. For information: The Director, The Carver Foundation, Box 188, Tuskegee Institute, Alabama.

Johns-Manville Sales Corporation announces the availability of Metal-On Pipe Insulation, which provides Thermobestos calcium silicate pipe insulation and an aluminum jacket in a single package. Brochure IN-217A may be requested from the company at 22 E. 40th St., New York 16, N. Y.

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The 10th Anniversary of the Aerosol Division of the Chemical Specialties Manufacturers Association was celebrated in December by an "Aerosol Supermarket" at the Hotel Commodore, New York, exhibiting nearly 100 different types of products in aerosol containers. Pressure packaging is now a \$400-million business, consuming some 200-million feet of polyethylene tubing and 43,000 tons of liquefied fluorinated hydrocarbons as well as other gases.

Eastman Chemical Products, Inc., subsidiary of Eastman Kodak Co., announced recently the development of "Kodel," a new polyester fiber for blending with other fibers in fabrics and apparel that can be classed as "wash and wear and easy care."

W. R. Grace & Co., New York 4, N. Y., has organized Grace Electronic Chemicals, Inc., as sales representative in the U. S. for International Metalloids, Inc., of Puerto Rico, which produces high purity silicon.

The Wm. S. Merrell Co., Cincinnati 15, Ohio, dedicated September 11th, its new Medicinal Chemistry Laboratories, which added 14,000 sq. feet of floor space to its research buildings. Featured at the dedication was a talk on "The Future of Medicinal Chemistry," by Dr. Hans Selye, director, Institute of Experimental Medicine & Surgery, University of Montreal.

Cosmetic Advertising May Discourage Research

The cosmetic industry, which has been described as one of ideas and imagination selling hope, recognizes the importance of the psychological nature of the product. In the face of keen competition there is almost an irresistible temptation to resort to an exaggerated, if not altogether fanciful, advertising or selling formula offering hope beyond any relation to reality.

Since the merit of the chemical composition of a cosmetic cannot be perceived at a glance, the potential consumer is naturally more captivated by the greater promise of the promotion department's imagination. Such a condition discourages real chemical research. Why spend time, money and effort to create a superior product if the chemical objective to be sought would fall short of what already is claimed to be an actuality? . . .

The consumer herself bears some of the responsibility for the current state of affairs. She seeks the sensational product and the dramatic cure—in cosmetics as in medicine. No one manufacturer can afford to educate the consumer to the true evaluation of a product. But yet, perhaps this very insistence of the consumer for "magic" performance can act as a spur to achievement.

—Hazel Bishop, F.A.I.C.
(Speaking before the A.C.S. Division
of Chemical Marketing & Economics.)

Johns Manville Fibre Glass Inc., a wholly-owned subsidiary of Johns-Manville Corp., has acquired L.O.F. Glass Fibers Company. It becomes the 10th operating division of Johns-Manville. The division's general offices will remain at Toledo, Ohio.

Bex Industries, 210 Fifth Ave., New York, N. Y., recently demonstrated its new bacteriostat, Corobex, for incorporation in rug and upholstery cleaners, waxes and in formulations of plastics, rubber, ink, paper, paraffin, textiles, and leathers.

The Instrument Society of America announces that its Nuclear Congress will be held at Cleveland Ohio, April 5-10, 1959. For information, Dr. S. Baron, Burns & Roe, Inc., 160 West Broadway, New York 13, N. Y.

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